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CHENG, PETER L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Arguments

1. Applicant's arguments filed 4/18/2008 have been fully considered but they are not persuasive.

Examiner's previous assertions are maintained. Further clarification is provided below in response to Applicants' current arguments.

With respect to applicant's arguments regarding claims 1 – 3 that

1. BOWERS' raw data is not a small set of colors that is much smaller than a color conversion LUT, but rather, is the full set of colors necessary to generate the LUT **[page 13, 3rd paragraph]**,

   although BOWERS paragraph 0018 discloses that a pre-existing color LUT may be replaced, modified or updated with the LUT generated per Fig. 1, BOWERS nonetheless does not disclose, teach or suggest using a small set of colors used to characterize the object that is much smaller than the color conversion LUT to replace, modify or update the pre-existing LUT, and hence, does not disclose, teach, or suggest modifying or updating the pre-existing LUT with a signature color data lookup table" **[page 14, 2nd paragraph]**, there is no such implication that Fig. 1 or the ***balance of the BOWERS disclosure*** pertains to ***partial calibration data*** that covers only a portion of the printer's color gamut **[page 14, 4th paragraph]**

and BOWERS does not disclose, teach or suggest the knowledge of using only a small set of colors to modify a color conversion LUT, but rather, BOWERS stores the full set of colors in the cartridge memory **[page 16, 2nd paragraph]**,

2. the claim limitation "*combining said signature color data lookup table with said standard color conversion lookup table to generate a composite color conversion lookup table for use with said imaging objec*t" is not expressly or inherently described in the BOWERS reference **[page 15, 2nd paragraph].**

3. and with reference to BOWERS' paragraph 0019 **[***If the calibration data comprises of a color LUT with adjusted color values, then the printer will immediately begin the calibration process of adjusting the output color value to be equal to the input color value*], Applicants claim, "the color LUT with adjusted color values is not disclosed, taught or suggested by BOWERS to be a small set of color used to characterize the object that is much smaller than the color conversion LUT, but rather is the color conversion LUT itself, and hence is also the full calibration data" **[page 14, 1st paragraph]**

have been considered.

In reply:

Regarding point #1, BOWERS, as with Applicants' invention, recognizes that there may be a need to store *a smaller set of colors than a color conversion LUT* in the "memory embedded in an ink cartridge"; **page 1, paragraph 0017, line 7 – 8.** BOWERS cites, "The LUT may also be stored on the memory, however, *an LUT needs a large size of memory space*. Therefore, it is advantageous to *store only the raw data on the memory and create the LUT just before printing*"; **page 1, paragraph 0017, lines 8 – 12.**

However, Applicants maintain that BOWERS does not teach using a "small set of colors", much smaller than a color conversion LUT, "used to characterize the object", and that there is no implication in the "balance of the BOWERS disclosure" that "pertains to partial calibration data that covers only a portion of the printer's color gamut".

BOWERS teaches that "an initial set of color patches is printed from at least one printer and on at least one print substrate" [**page 1, paragraph 0015, lines 3 – 4**] and that "the printed color patches, having a predetermined input value, are measured for color *values*, such as tristimulus values"; **page 1, paragraph 0016, lines 1 – 3.**

BOWERS further teaches that the "raw data", *which is advantageously stored in the ink cartridge's memory*, is the "predetermined input values and the measured color values"; **page 1, paragraph 0019, lines 5 – 6.** That is, the "raw data", the "predetermined input values" and the "measured color values" is *not the full color LUT*.

As noted in the previous action, if the calibration data comprises a color LUT with adjusted color values *containing either full or partial calibration data*, the printer begins the "calibration process of *adjusting the output color value to be equal to the input color value*"; **page 2, paragraph 19, lines 8 - 10**. *That is, there is an association between an "input color" and an "output color".* If the LUT with adjusted color values contains *partial calibration data* that is used to *modify a pre-existing color LUT*, then such an LUT would correspond to a "signature color data lookup table".

In claim 1, BOWERS cites a "method of providing calibration data to a printer" including the *first step* of "printing *a set of color patches* **from** *a predetermined set of input values*" **[page 2, paragraph 20, claim 1, lines 3 – 4]**. The selection of a "*set* of color patches" from a "*predetermined set* of input values", which are associated with "output color values", implies that not all "input color values" need to be chosen in producing the "raw data". Therefore, the "raw data" may be a smaller set of color than a full color conversion LUT. BOWERS' teaching of the selection of a set of color patches is akin to Applicants' own teaching that "it may be appreciated by those skilled in the art that the *number of signature colors to be selected* will depend upon color correction accuracy requirements”; **page 8, lines 26 – 28.**

Therefore, regarding point #2, the modification of a pre-existing color LUT with an LUT containing “partial calibration data” corresponds to a “combining” of a “signature color data lookup table” with a “standard color conversion lookup table”.

Regarding point #3, Applicants’ reference to **paragraph 0019** teaches “the calibration data comprises of a *color LUT* with adjusted color values”; **page 2, paragraph 0019, lines 7 - 8**. Obviously, a full *color LUT* is not a “small set of colors used to characterize the object that is much smaller than the color conversion LUT”. That is, BOWERS teaches a full “color LUT with adjusted color values” as an *alternative* to storing calibration data which is “*raw data*, such as the predetermined input values and the measured color values”; **page 1, paragraph 0019, lines 4 – 6.**

With respect to applicant’s arguments regarding claims 4 - 7 that

4. CHU does not disclose, teach or suggest classes of signature color data lookup tables based on a color similarity, much less generating a color class table for each class of signature color data lookup tables, as recited in claim 4 **[page 19, 2nd paragraph]**,

5. CHU does not disclose, teach or suggest assigning a class code to each color class table, but rather, stores individual ink cartridge identifiers for ink cartridges with corresponding characterization data without establishing classes of characterization data and class codes corresponding thereto **[page 19, 3rd paragraph]**,

6. and Applicants' specification makes clear that the present invention pertains to imaging objects of the same type, not different types or models **[page 20, 1st paragraph]**,

with the "class method", imaging objects 21 are subdivided into classes according to their color reproduction characteristics, not merely based on having the same ink colors **[page 20, 2nd paragraph]**,

rather than pertaining to classifications into color vs. black ink, etc., the color shift correction performed by *certain embodiments* of the present invention pertains to classifying imaging objects into classes *based on variations that might cause the color output to shift*, such as the different variations listed in the preceding paragraph **[page 20, last paragraph]**

have been considered.

In reply:

Regarding points #4 and #5, Examiner maintains the assertions made in the previous action.

Regarding point #6, as stated in the previous action, it is the differences between various types or models of printing cartridges (e.g., tri-color, black, photo, low and high fill) that *inherently classifies or differentiates these cartridges*. Therefore, based on a color similarity, tri-color ink cartridges would be in a class separate from a class comprising of black ink cartridges, or a class comprising of photo ink cartridges. Or stated in another way, tri-color ink cartridges, *being of the same type,* are classified differently than black ink cartridges *of the same type*, or photo ink cartridges *of the same type*.

Since the types of ink colors contained in a printing cartridge (e.g., black, or cyan-magenta-yellow) determine, in part, the "color reproduction characteristics" of a printing cartridge (i.e., an imaging object), it would have been obvious to one of ordinary skill in the art at the time the invention was made to *classify* imaging objects, such as *printing cartridges*, by the types of ink colors.

Although, the "color shift correction" occurs due to variations between imaging objects of the same type, it is the "signature colors of an object (cartridge, scanner, substrate, etc.) … that can be used to characterize the object, or to *classify the object into a class* *of objects with similar color characteristics*"; **page 7, line 32 – page 8, line 1.** Even BOWERS teaches that "variations in color of inks are due to the difference in ink manufacturing from company to company"; **page 1, paragraph 0004, lines 1 – 2.**

plc
May 8, 2008
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